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NEW ECONOMIC TRENDS IN GLOBAL MANUFACTURING: WHY ARE
MANUFACTURERS LEAVING CHINA?

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Abstract

For decades there has been a common manufacturing allocation decision pattern consisting on driving production plants to low cost countries. Nowadays, some of those destinations are getting especially expensive in terms of labor. This is the case of China whose manufacturing competitiveness erodes as wage gap narrows. New decisive factors come to the fore: labor flexibility and reforms, clusters of excellence, logistics and infrastructure, government incentives or tax regulation.

Manufactures respond in different ways. Some are moving, others leave and part of them come back home. New strategies are studied in this report which main aim is to draw a global picture of the multiple movements currently seen.

Spanish manufacturers are not indifferent. A number of Spanish companies shared their points of view and corporate allocation experiences for the elaboration of this report. From their interviews we learn and confirm our expectations about this new global trend in manufacturing. Those companies are: Babyauto, AYB Hislabor Décor SL, Ficosa SA, Orbea Sociedad Cooperativa Industrial and Papel Aralar SA.

Motivation

As usually, on 18th August 2015 we received the online edition of Diario de Navarra. It is always interesting to read the economy and job pages. Page 9 (Appendix 3) that day looked shocking for the author of this papers who did not expect to read what was written. For years, headlines said companies were leaving their home countries deciding to build manufacturing plants in China. However, that day's headline said a company was coming back home. Either the headline was wrong or something was eroding China's attractiveness.

The Spanish company Safety Babyauto SL is based in the Basque Country and well-recognized as one of the main child safety car seats producers. After years producing in China, its Spanish CEO Gabriel Eizaguirre launched the premium brand *Babyauto More* and decided to produce it in Spain rather than in the Chinese city of Ningbo, where he does keep the basic line.

"Made in Spain labeling does not create greater value for Spanish customers. However, Chinese customers are willing to pay extra money for the great value that the *"made in Europe"* label creates for them." Eizaguirre says; "While one of our baby seats will be sold in Spain for 79 or 80 euros, in China that could be around 150. Moreover, shipping costs are cheaper from Spain to China and intellectual-property rights are better protected in Spain".

The article triggered my curiosity. Would there be more Spanish companies returning their production from China back home? What is happening elsewhere? That was the starting point of this paper.

Key words

Reshoring is the practice of bringing manufacturing back to the origin country. It represents the reverse process of offshoring.

Offshoring means moving works and jobs outside the country where a company is based. Offshoring may involve or not outsourcing.

Outsourcing means sending work to outside contractors. It can either be in the home country or abroad. Offshoring is just for overseas movements.

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1. INTRODUCTION

During the last decades, Western companies followed a common supply chain sourcing strategy which consisted on driving production plants to countries with cheaper production costs. They made their savings by sending low-qualification work to countries where wages were cheaper and workers were willing to accept tougher working conditions.

This strategy successfully worked for several decades. We have continuously seen how companies left their original locations, moved overseas and tried to supply the rest of the world from low-cost places. Particularly China has long been seen as a potential destination for a company's product manufacturing.

The development and economic growth of China during the last 30 years was the biggest economic event in the history of the 21st Century. Since 2001, when China entered the World Trade Organization (WTO), it became the default option for many companies offshoring production. China has the biggest population in the world with 1.3 billion of people. Its supply of low-cost labor, huge domestic market, artificially low currency together with its government policies made China the clear choice.

However, today firms are moving away from this model of production, rethinking their global footprints and leading to a global reallocation of manufacturing. The “made in China” model is giving its way to a new “made for China” way of thinking. Multinationals would like to be close to customers in new emerging markets and respond to their local demand.

This research project is engaged in addressing three questions about manufacturing sourcing these days. First; why is the “Made in China” model weakening? Second; what are companies doing? Which are the alternatives for sourcing manufacturing? And third; Could Spain be seen as a potential manufacturing location for companies leaving China?

The answers given in this paper have been elaborated with the collaboration of several Spanish companies sharing their corporate reallocation experiences.¹ This original material reveals how some Spanish manufacturers are bringing parts of its production processes back to Spain but still keep some other parts located in Southeast Asian countries rather than China.

¹ Personal and email interviews were conducted with Babyauto, AYB Hislabor Décor SL, Ficosa SA, Orbea Sociedad Cooperativa Industrial and Papel Aralar SA.

2. CHINA MANUFACTURING COMPETITIVENESS LOSS.

China's international status as the "world factory" has persisted for decades. It replaced Japan as the second largest trading country in the world and became the second largest industrial manufacturing country after the United States. From 2000 to 2009, China's exports increased to 1.2\$ trillion and its share of global exports rose from 3.9 percent to 9.7 percent, according to United Nations Conference on Trade and Development data.²

Despite this, today China has to say farewell to a large number of multinational brands who are shutting down their Chinese factories in order to move elsewhere (*offshoring*) or simply go back to their origin locations (*reshoring*). The companies which are object of study in this paper represent examples of *reshoring* strategies. Nevertheless, there are still companies taking *offshoring* decisions and moving to new countries in order to enjoy their specific economic advantages.

As an example of offshorers leaving China, Japanese watch maker Citizen is abandoning its manufacturing factory in Guangzhou in order to move production to Thailand. The move was announced just before the Chinese New Year³, leaving a thousand Chinese employees to celebrate their holidays knowing they'll soon be laid off.⁴ The company had been operating in the city for 20 years. The spokesman of Citizen Yamada Yukio told Shanghai Daily in an interview; "The reason for closing the factory is a part of Citizen Holdings' strategies to restructure overseas businesses to increase productivity. Production line is being switched to Thailand."⁵

At the same time, Microsoft announced plans to shut its facilities in Dongguan and Beijing in order to move its production to Vietnam. The company restructuring will come at the expense of 9,000 Chinese employees, all of whom will be sent home. Many other companies have signaled similar intentions. Panasonic, Daikin, Sharp, and TDK have announced plans to close

² Report by the secretariat of the United Nations Conference on Trade and Development. (2009). Trade and development report, 2009. New York and Geneva. United Nations.

³In 2015, Chinese New Year was on Thursday, February 19th. This special event is also known as the Lunar New Year or the Spring Festival, marks the first day of the New Year in the Chinese calendar.

⁴ Charles Liu. The Nanfang's Senior Editor. (27Feb2015). Foreign Companies Fleeing China En Masse as Costs, Risks Rise. Available in: <https://thenanfang.com/>

⁵ Lenc Cheng (9Feb2015). *Citizen closes Guangdong watch parts factory*. Online edition of the Shanghai daily available at www.shanghaidaily.com.

down their China facilities and take their manufacturing bases back to Japan. UNIQLO, Nike, Foxconn, Funai Electric, Clarion, and Samsung are now establishing factories in other countries throughout Southeast Asia and India.⁶

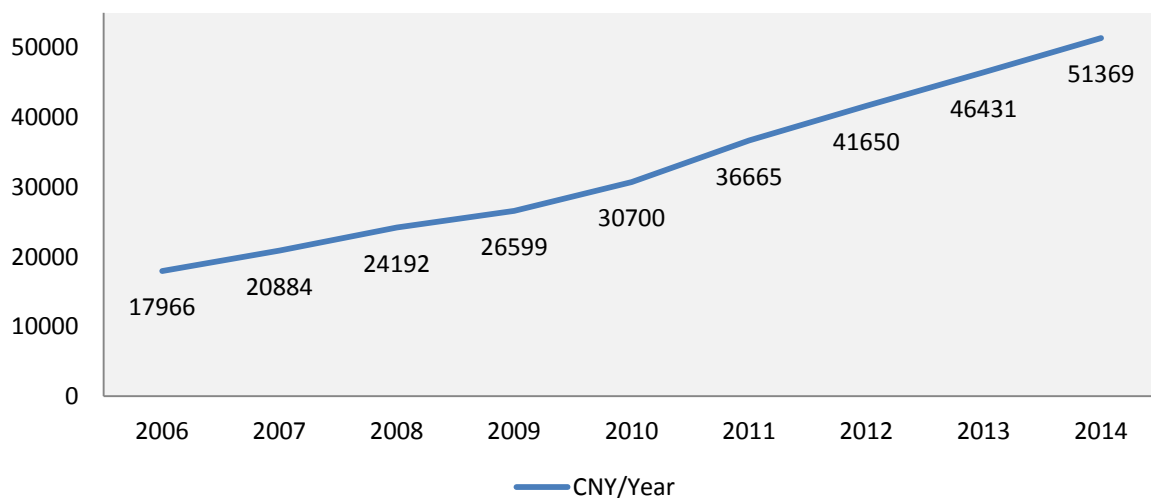
China is no longer seen as a cheap manufacturing base and the “made in China” model is weakening. The following points in this section are aimed to explain the different factors that had contributed to the China manufacturing competitiveness loss.

2.1 Principal factors behind the loss

2.1.1 Labor and productivity.

Although manufacturing wages rose in many countries during the last decade, China have experienced annual increases ranging from 10 to 20 percent.⁷ Labor costs in China had a substantial increase of nearly four times in the recent 10 years (Graph 1). Moreover increasing wages have not been compensated with increasing productivity.

Graph 1: China average yearly wages in manufacturing.



Source: Own elaboration based on data from National Bureau of Statistics of China.

⁶ Charles Liu. The Nanfang's Senior Editor. (27Feb2015). *Foreign Companies Fleeing China En Masse as Costs, Risks Rise*. Available in: <https://thenanfang.com/>

⁷ Pei Changhong (11Mar2013). *As the "world's factory", China holds the advantage over the next 10 years*. Chinese social Sciences Net (CSSN). Available in <http://english.cssn.cn/>

Although there are still important gaps in wages between China and other parts of the World, other factors such as energy prices or transportation issues often offset them. Labor is no longer a clinching reason for addressing China.

2.1.2 Natural gas and electricity

Energy prices in China have increased substantially during the last decades. In addition to this, lower energy prices in other countries such as the USA or Mexico are opening up new opportunities for companies which could use their natural gas for operations, reduce dependency on foreign oil and cut greenhouse gases.

A central feature of China's macroeconomic strategy through 2015 is to create cleaner industrial processes and solve environmental problems. Energy consumption, carbon emissions and pollution control are to become important cost considerations for companies operating in China⁸ in the coming years.

2.1.3 Exchange rates

The increasing volatility of exchange rates after the collapse of the Bretton Woods agreements has been a source of concern for policymakers and academics everywhere since the 1970s.⁹ Exchange rate risk increases trade costs and reduces the gains from international trade.

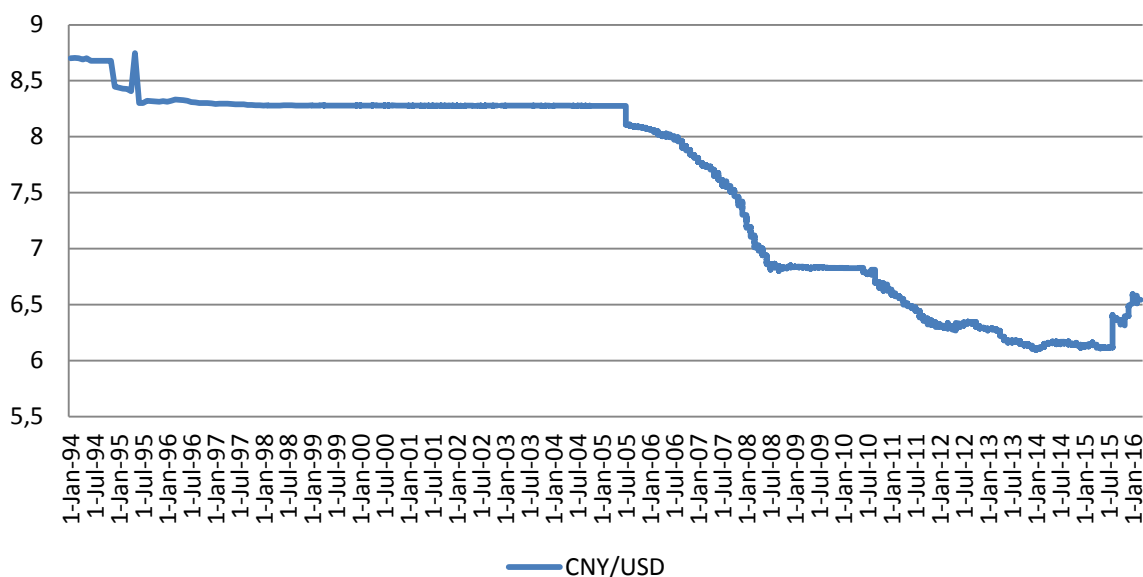
China presents a high exports rate given its size which means that the country is substantially expose to exchange rate fluctuations. In this sense, volatility is a significant barrier to Chinese exporters' performance.

Chinese Yuan (the base unit of the Renminbi or RMB) was strongly pegged to the US dollar until July 2005. From 1994 to this date one dollar equaled 8.28yuan and that rate was kept constant. In 2005, the Chinese government changed the system to a managed peg system referenced to a basket of other countries currencies. From 2005 the RMB gradually appreciated against the dollar. Since then, Chinese Government frequently intervened halting the appreciation of its currency to diminish its negative effects on China's exporters (Graph 2).

⁸ China Business Review, the magazine of The US-China Business Council (2012). *China's Environment targets: Another Cost Increase on the Horizon*. Available at www.chinabusinessreview.com

⁹ Bretton Woods died on 1971 when the president Nixon decided to suspend dollar's gold convertibility.

Graph 2: Chinese Yuan evolution (CNY/USD).



Source: Own elaboration based on data from the International Monetary Fund exchange rates database.

China's policy of intervention to limit the appreciation of its currency became a major source of tension with its trading partners and specially the USA. Some analysts contend that China deliberately "manipulates" its currency in order to gain unfair trade advantages.¹⁰ China was cited as a currency manipulator over several issues such as its dual exchange rate system, periods of currency devaluation, restrictions on imports and lack of access to foreign exchange importers.

These interventions intended to devalue the Yuan are influencing negatively on Yuan investors perception on Chinese capital markets, rising capital flight risk and arising difficulties for those companies which debt is expressed in other currencies. An excessive devaluation of the Yuan could increase inflation together with interest rates and drive Chinese situation from bad to worse.

From 2005 the yuan not only appreciated against the dollar but also against the euro. While the yuan appreciates over the euro and dollar, the euro itself is depreciating against the dollar. All this fluctuations taken together are making some European countries look more attractive.

¹⁰ Marc Labonte, Wayne M. Morrison (22 July 2013). *China's Currency Policy: an Analysis of the Economic Issues*. Congressional Research Service (CRS) Report for Congress, USA.

2.1.4 Land

Resource costs represented by land also rose sharply in China. In late 2011, the overall level of land price of the nation's major monitored urban area was 3,049 Yuan per square meter, which is 2.4 times of the price at the end of 2005.¹¹

2.1.5 Labor unrest.

Many foreign invested factories concentrated in China's coastal areas experienced a string of labor-related protests and strikes. The new generation of Chinese blue-collar workers, born during the 1980s and 1990s, are more sensitive to social issues and workplace rights than their parents.¹² Previous generations might have taken any city job available, even for low salaries. But young workers today seek jobs that not only pay well enough to secure a better life for their families, but also provide career development, treat employees with respect, and help them gain a foothold in the cities. Companies may need to consider boosting employee compensation and benefits and improving work hours and supervisor-employee relationships.

In 2010, Foxconn International which employs 920,000 people in China doubled wages at its immense Shenzhen campus following a string of worker suicides.¹³

2.1.6 Transportation

Transportation, delivery time and shipping costs play a key role in outsourcing decisions. The transit time from China to most locations in Europe and the United States varies from 29 to 35 days.¹⁴ It takes a few days to load the cargo in China and pick it up in the port of destination. It requires long-term planning compared to domestic product purchases. Moreover, shipping from China involves a multitude of different fees even though the cost is closely related to the selected incoterms. Some of the costs that are to take into account when

¹¹ People's Daily Online.(19Feb2013).China's 'world factory' status will not be replaced.English.people.cn, Available in: <http://en.people.cn/>

¹² Luming Chen and Samuel Estreicher (2011). *A new labor Era: Higher Costs and Greater Pressures*. Article posted in China Business Review, Available at www.chinabusinessreview.com.

¹³ Brian Stoffel.(19Jan.2012).Here's why American Manufacturing will make a comeback, The Motley Fool. Available in: <http://www.fool.com/>

¹⁴Fredrik Gronkvist (22Nov2013). *Sea Freight & Shipping from China- The Ultimate Guide*. From China Importal blog Available at www.chinainportal.com

exporting from China are; transport to Port of Loading (included in FOB), export clearance (Included in FOB), sea freight charge (included in CIF), insurance (Included in CIF), port fees (Included in DAT), customs clearance fees, custom duties..

After Boeing, an airplane-maker, outsourced 70% of the development and production work on its new 787 Dreamlines to around 50 suppliers; it suffered huge delays because its outsourcing partners failed to produce parts on time.¹⁵

2.1.7 Other

Inventory expenses, quality control problems, unanticipated travel needs, and the threat of supply disruptions due to natural disasters are examples of the many drawbacks of outsourcing to China.

Besides, there are added concerns about intellectual-property theft, trade disputes and research and development (R&D) investments. Manufacturing far away from the company's R&D center may cause negative effects on innovation. One could think that moving the center to the outsourcing country could be a solution but in China there is always the threat of intellectual-property theft.

For many goods, when transportation, duties, quality problems, Chinese production rules and other issues already mentioned are fully accounted for, the cost savings from manufacturing in China become minimal or null.

3. NEW MANUFACTURING DESTINATIONS

As we have seen in the previous section the manufacturing competitiveness of China has worsened over the past decade, thus manufactures have been looking for new destinations to base their production (either in their origin locations or new potential ones overseas). In this section we have a look at the plausible alternatives, within the Asian continent and elsewhere.

To understand the cost competitiveness on each of the alternatives, we are going to analyze the Boston Consulting Group (BCG) Manufacturing Cost-Competitiveness Index. This index

¹⁵ The Economist (19Jan2013). *Home or abroad? Herd instinct*. Special report of the series *Here, there and everywhere*. Available at www.economist.com.

reveals important shifts that could explain how companies reconsider their sourcing strategies and where to build future production capacity.

It analyzes the world's 25 leading exporting economies which account for nearly 90% of global exports of manufactured goods. This Index reports information about four key dimensions: manufacturing wages, labor productivity, energy costs and exchange rates. Within the index we observe distinct patterns of competitiveness change among countries. It compares data from 2004 and 2014.

The Index needs to be interpreted in the following way. Let us take Country A as an example. The score for Country A remains both years as the base at 100. If an economy has a score of 110 in the Index, the average manufacturing costs of that economy are 10 percent higher than in Country A, it has a 10% manufacturing-cost disadvantage over Country A. On the contrary, if an economy has a score of 96 in the Index it is 4% cheaper than Country A, it has a 4% manufacturing-cost advantage over Country A.¹⁶

Before starting our analysis, it is important to keep in mind that Chinese labor and productivity data taken for the BCG Global Manufacturing Cost-Competitiveness Index are for the Yangtze River Delta region which is represented in Illustration 1.

Illustration 1: Yangtze River Delta, China.



Source: Google Images

¹⁶ Notes about the Index:

Weighted average cost structures are calculated using a mix of U.S. industries.

Labor costs are adjusted for productivity.

No difference is assumed for other costs (for example, raw-material inputs, machine depreciation and computer hardware and software).

Chinese labor and productivity are for the Yangtze River Delta region.

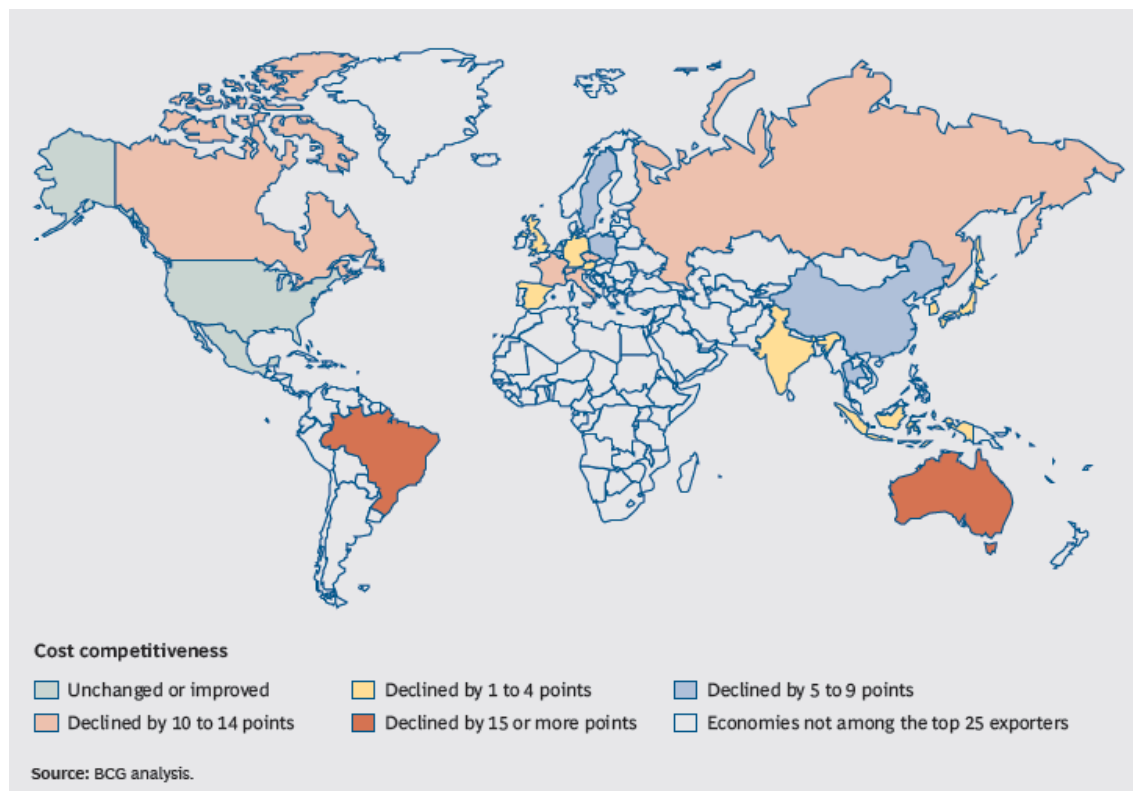
Sources: U.S. Economic Census; U.S. Bureau of Labor Statistics, U.S. Bureau of Economic Analysis; International Labour Organization (United Nations); Euromonitor; Economist Intelligence Unit; Organisation for Economic Co-operation and Development; and BCG analysis. Available at:

https://www.bcgperspectives.com/content/interactive/lean_manufacturing_globalization_bcg_global_manufacturing_cost_competitiveness_index

The next map (Illustration 2) shows the shifts in the relative cost competitiveness of the top 25 export economies according to the Boston Consulting Group analysis. Cost competitiveness remains unchanged or improved in the USA and Mexico. Within Europe there have been different patterns of change. Whereas in Spain, the UK or Germany competitiveness decreased by 1 to 4 points in other countries like France or Italy it declined by 10 to 14 points. Spanish productivity worsened but less than Chinese. In China cost competitiveness has declined by 5 to 9 points.

This map gives us a good guidance for the other plausible alternatives that manufacturers are considering for their global supply chain strategy decisions.

Illustration 2: The relative Cost Competitiveness of the Top 25 export economies has shifted dramatically



Source: The shifting economics of Global Manufacturing: How cost competitiveness is changing Worldwide, Exhibit 3, BCG analysis, Aug 2014

3.1 Asian alternatives.

3.1.1 Fleeing to SE Asia

According to the "World Investment Report 2012", the flow of foreign direct investment to Southeast Asia in 2011 was 117 billion U.S. dollars, increasing by 26 percent over the previous year; while China's growth rate over the same period was only 8 percent. As the competitiveness of the manufacturing sector in China weakens, other Asian countries located in the south east such as Vietnam continues to strengthen.

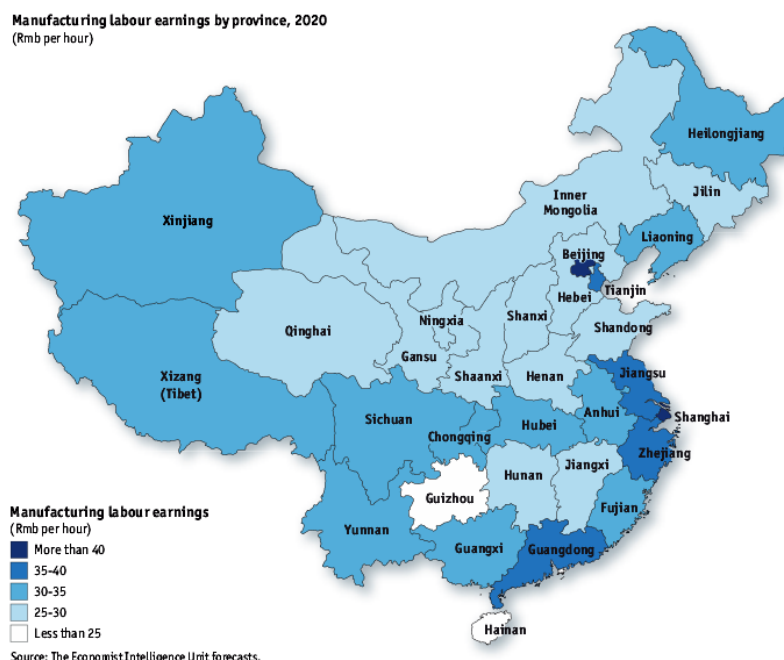
As an example, over 40 percent of Nike shoes were produced in China in 2000 while Vietnam produced only 13 percent. By 2010, Vietnam had replaced China and become the world's largest producer of Nike shoes. The American company moved its production plants to other countries such as Vietnam or Bangladesh which are cheaper.¹⁷

3.1.2 Staying in China but moving westward

Labor costs in coastal cities and provinces, including traditional manufacturing bases such as the Pearl River Delta and the Yangtze River Delta regions, have increased considerable with respect to those in inland provinces. Labor-intensive industries may wish to consider relocating their operations to inland provinces, especially to traditionally less-developed central and western regions.

¹⁷ Se Yan, Shuang Ding (22Jan2016). *China's demographic dividend-Shift to quality*. On the ground, Standard Chartered. Available at www.sc.com

Illustration 3: Manufacturing labor earnings in China: province differences, 2020 forecasts (Rmb per hour).



Source: The Economist Intelligence Unit (EIU).

The EIU forecasts that by 2020 (Illustration 3) the earnings of factory workers in Beijing, which are anticipated to be the highest in the country, at nearly Rmb42.7/hour, will be 1.8 times greater than those in the southern island province of Hainan.¹⁸ Guangxi and Jiangxi, two inland provinces likely to attract growing manufacturing investment in the coming years, are also expected to see an acceleration in labor costs growth. Guangxi, particularly, borders Vietnam and in recent years its trade with South-east Asia has boomed.

China launched two strategies to develop its central and western regions in the last decade. On the one hand, the PRC State Council launched the Western Development Strategy, China's first comprehensive regional development plan to boost the economies of western provinces, in 2000. On the other hand, Premier Wen Jiabao announced the Rise of Central China Plan, a development strategy to coordinate regional growth in six central provinces, in 2004. To achieve the broad goals in the plans, companies in central and western regions may enjoy benefits that are no longer available in the coastal regions, such as reduced income taxes and

¹⁸ The Economist Intelligence Unit (2014). *Still making it: An analysis of manufacturing labor costs in China*. Available at www.eiu.com

low land prices and labor costs. Both plans provide an important guideline for foreign companies looking to expand in China.

In any case, reallocation to inland provinces moving away from the sea, presents the great disadvantage of increasing delivery times and transportation costs to the rest of the World. Other alternatives such as American or European countries play a more important role in this new global manufacturing reallocation move.

3.2. “Reshoring” phenomena in America.

The shift of American production facilities from China back to the United States has been named by Americans as “Reshoring”. This concept has been widely spread and commonly used in some other locations. Those companies following this new “reshoring” sourcing trend are known as “Reshorers”.

In a survey by the BCG in April 2012, 37% of those companies with annual sales above \$1 billion said they were planning or actively considering shifting production facilities from China to America. Of the very biggest firms, with sales above \$10 billion, 48% came out as reshorers. BCG has identified the following reasons for companies considering a shift in their operations back to the US:

- Labor costs (57%)
- Product quality (41%)
- Ease of doing business (29%)
- Proximity to customers (28%)

In addition to wages, productivity and energy costs there are additional factors contributing to the reshoring trend. Among them; long delivery times and rising shipping costs, quality control issues, the physical separation of design and production personnel and a lack of strong intellectual property regulation.

The manufacturing cost competitiveness of the USA and Mexico improved substantially over the past decade compared with all the other economies in the BCG Global Manufacturing Cost-Competitiveness Index (Illustration 2). Productivity-adjusted wages and currency rates

have remained stable or improved for these two countries. As a result, these countries are seen as potential locations for companies rethinking their global footprints.

3.2.1 The United States

After World War II, the US accounted for around 40 percent of the world's manufactured goods in the early 1950s. Then, after the European reconstruction and the Japanese exports, it suffered a dramatic loss of market share. In the 1980s the rise of the East Asian Tigers such as South Korea and Taiwan led to a massive transfer of labor-intensive goods and much of the US computer and consumer-electronics manufacturing industry.¹⁹

Nevertheless, in 2010 the USA economy started benefitting from the initial effects of the Chinese competitiveness loss and the resulting reallocation of global manufacturing. Table 1 shows the 2004 and 2014 versions of the BCG global manufacturing cost-competitiveness index with the USA as base both years.

Table 1: Average manufacturing cost index in 2004 and 2014 (USA=100).

	2004		2014	
	China	USA	China	USA
Labor	4.5	18.2	10.2	18.2
Electricity	1.4	1.1	1.8	1.1
Natural gas	1.4	1.5	4.4	1.5
Other	79.2	79.2	79.2	79.2
Total	86.5	100	95.6	100

Sources: Own elaboration taking data from The BCG Global Manufacturing Cost-Competitiveness Index, August 19, 2014. Available at bcg.perspectives.com by The Boston Consulting Group.

According to the index, in 2014 it was only 4.4% more expensive to produce in the USA than in China. China's cost advantage of 13.5% in 2004 had shrunk by 9.1% during those 10 years. The cost savings of making goods in China rather than in the USA are tailing off as the country gets more expensive.

Robotics provides opportunities for American manufacturers as well. Today, robots usage in the USA is broadly extended. 3-D printing is a process in which individual machines build

¹⁹ Harld L.Skin, Michael Zinser and Douglas Hohner (2011). *Made in America Again. Why manufacturing will return to the U.S.* The Boston Consulting Group, BCG.

products by depositing layer upon layer of material. It is already being used in many American research departments and factories. As an example, Disney is developing 3-D printed lighting for interactive toys, and says that in future the interactive devices inside such toys may be printed rather than assembled by hand. Additive manufacturing machines can be left alone to print day and night. For now they are used mainly for prototyping and for complex parts, but in future they will increasingly make final products too.²⁰

Moreover, natural gas prices are falling to historic low levels in the United States, reducing energy costs for domestic companies. This is called the *Shale gas Revolution*.²¹ Advanced drilling techniques were perfected in recent years, unlocking vast supplies of natural gas in previously inaccessible deep shale rock in areas like the Marcellus region in Pennsylvania and surrounding states. Cheap natural gas has potential to create massive amounts of manufacturing jobs and will generate cost saving for US manufacturers. Domestic producers will gain higher profits, increase investment in their factories and increase employment opportunities.

3.2.2 Mexico

Mexico enjoyed a surge of manufacturing investment and booming exports to the US following the signing of the North American Free trade Agreement in 1994. However, factory worked moved to China after this country entered the World Trade Organization in 2001. Since 2004 Chinese wages nearly quintupled while Mexican wages have risen by less than 50 percent in dollar terms.²² The average Mexican productivity-adjusted labor costs are now estimated to be lower than those of China. In addition to labor costs, as well as the USA, Mexico enjoys attractive electricity and natural-gas costs.

²⁰ The Economist print edition (19Jan2013). Coming home: A growing number of American companies are moving their manufacturing back to the United States. From The Economist available at www.economist.com.

²¹ Manufacturing in our favor. A Global Reallocation of Manufacturing by Mark Perry. Business Horizon. A U.S. Chamber of Commerce Foundation publication (2011).

²² The shifting economics of Global Manufacturing: *How cost competitiveness is changing Worldwide*, Exhibit 6, BCG analysis, Aug 2014.

3.3. Europe “re-industrialization”: The European renaissance.

Since the beginning of the debt crisis, while salaries in China increased disproportionately, wages have frozen or decreased in many Eurozone countries.²³ The internal devaluation of the euro zone together with its trade surplus explained by the massive increase of European exports; make Europe look attractive once again for companies.

European industry is gaining confidence due to the new R&D investment coming from manufacturing and the use of advanced manufacturing techniques which is making processes less labor intensive. These facts explain in part why the phrase “industrial revolution” is being reborn in Europe.

Most European governments, academics and robotics firms are working on what some people call to be a “*Fourth industrial revolution*”.²⁴ Big improvements in the cost and performance of robotics systems could be the catalysts of this Revolution. Faster, cheaper and more flexible robots are being developed in countries such as Germany speeding up delivery and diminishing freight costs. Today, robots in Europe are mainly used in auto production but the Boston Consulting Group predicts that the share of tasks that are performed by robots will rise from a global average of around 10 percent across all manufacturing industries today to around 25 percent by 2025.²⁵

During the last 10 years, there has been great development on human computer interaction. Rodney Brooks, chairman and CTO of Rethink Robotics²⁶, explains in an interview; “Today, normal people can interact with robots, educate them and let the robot do the required tasks by itself. This will allow systems where manufacturing can be done much closer to where the

²³ Graph 2 shows how it happened for Spain compared to China.

²⁴ Professor Klaus Schwab, Founder and Executive Chairman of the World Economic Forum is convinced that we are at the beginning of a revolution that is fundamentally changing the way we live, work and relate to one another, which he explores in his new book, *The Fourth Industrial Revolution*. As he says on the book, this Revolution is characterized by a range of new technologies that are fusing the physical, digital and biological worlds, impacting all disciplines, economies and industries, and even challenging ideas about what it means to be human.

²⁵ Harold L. Sirkin, Michael Zinser and Justin Rose. (2015). *The Robotics Revolution: The Next Great Leap in Manufacturing*. Manufacturing, innovation & growth. The Boston Consulting Group, Sept 2015.

²⁶ Company founded by Rodney Brooks, producer of the Roomba vacuum in the 2000s. Rethink Robotics is intended to provide an entirely new type of easy, safe, flexible and affordable automation to manufacturers.

goods are consumed-not halfway around the world-, cut down costs and much shorter supply chains matched to demand.”²⁷ Rethink Robotics has developed a new generation of robots called Baxter. It costs 22.000\$ a piece and can be simply taught by unskilled workers. It represents an alternative to off-shoring which is cost-effective and will bring many advantages to the manufacturing sector.

Footwear, as an example of manufacturing industry, produces its 87 percent in Asia, with China by far the biggest manufacturer, followed by India, Brazil and Vietnam.²⁸ These numbers could shrink as the need for workers to piece together shoes and other products in the footwear industry is being cut.

Factories leaving China and returning back to Europe mainly operate in the textile, shoes and electronics manufacturing sectors. Those sectors include computers and electronics; appliances and electrical equipment; furniture and transportation goods such as truck components and bicycles. These industries have relatively low labor cost components and high transportation related costs. Besides, companies know that “made in Europe” labeling that their products will wear if being produced Europe will effectively create greater value for Asian consumers.

4. SPAIN

Frozen or lower wages in Spain together with high qualification human capital, euro depreciation against the dollar and the “Made in Spain” labeling together, could convert Spain in an attractive region for supply chain location within Europe. The new wave of companies leaving China coming back to Spain could be named in Spanish as “*Relocalización industrial*”.

4.1. Brief comparative of Spain and China

4.1.1 Disparities/similarities between both countries

According to the BCG Cost Competitiveness Index China’s estimated manufacturing-cost advantage over Spain has shrunk to less than 12% percent from 2004 to 2014. Table 2 compiles the Index’s information for the particular cases of these countries.

²⁷ McKinsey&Company (2014). *A conversation with Rodney Brooks: Robots mean business* [video] available at www.mckinsey.com at the business-functions category.

²⁸ Apiccaps (2015). The 2015 edition of *World Footwear Yearbook*. Available at www.worldfootwear.com.

Table 2: Average manufacturing cost index in 2004 and 2014 (Spain=100).

	2004		2014	
	China	Spain	China	Spain
Labor	4,3	21,6	9,4	20,9
Electricity	1,3	1,2	1,6	2,2
Natural gas	1,3	1,3	4,1	3,9
Other	76	76	73	73
Total	82,9	100	88,1	100

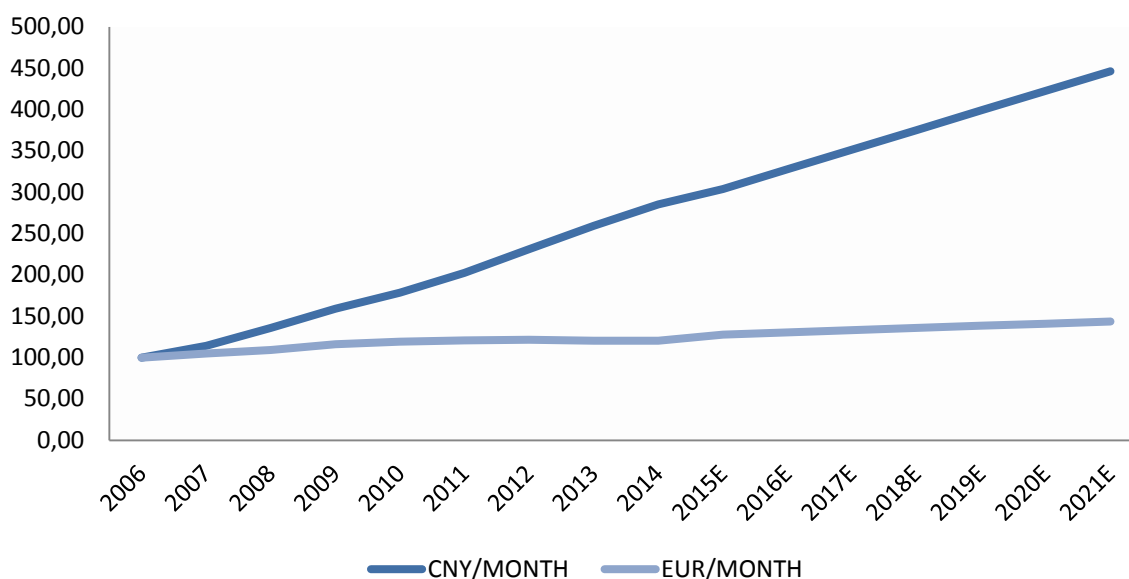
Sources: Own elaboration taking data from The BCG Global Manufacturing Cost-Competitiveness Index, August 19, 2014. Available at bcg.perspectives.com by The Boston Consulting Group.

In 2004 Chinese cost competitiveness over Spain was 17.1%. However, a decade later in 2014 these two countries have narrowed differences to 11.9%. The key factors driving changes within the index vary widely by economy. In this case, increasing labor and energy costs have eroded the competitiveness of China. The cost of industrial electricity increased by an estimated 66 percent in China and the cost of natural gas soared by an estimated 138 percent.²⁹

The range of hourly pay differentials for manufacturing workers remains enormous between Spain and China. Spanish wages are still more expansive than Chinese. However, from 2006 onwards, wage growth accelerated much faster in China than in Spain. Graph 3 shows that wages in Spain have followed a much slower growing path. Besides, this explosive growing trend in China is estimated to continue during the next decade.

²⁹The shifting economics of Global Manufacturing: How cost competitiveness is changing Worldwide, Exhibit 6, BCG analysis, Aug 2014

Graph 3: Chinese and Spanish monthly wages evolution (base 2006).



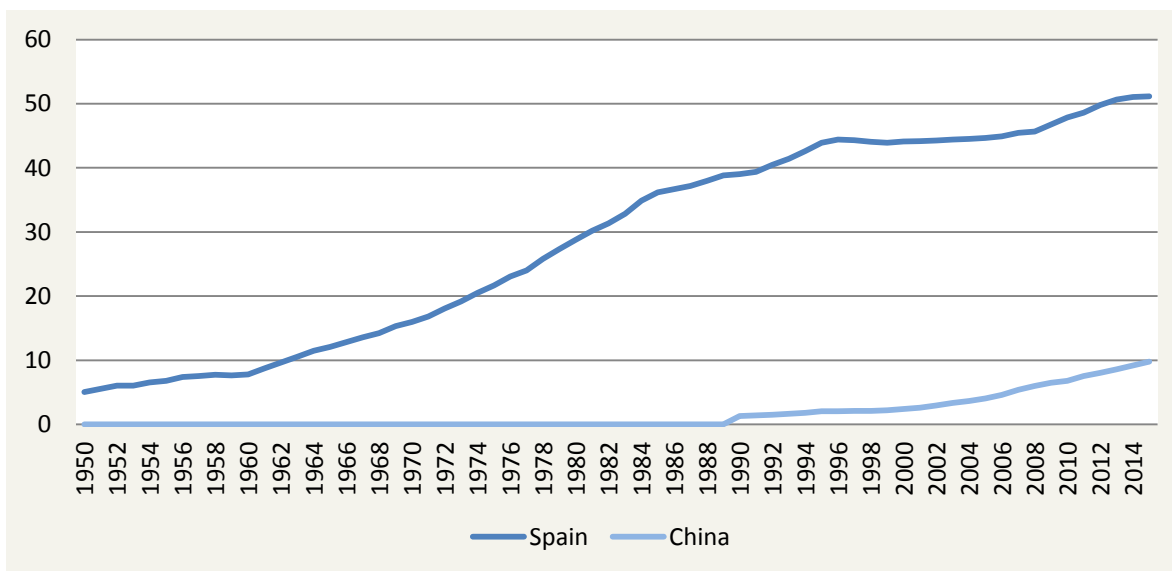
Source: Own elaboration based on data from Trading Economics.

Since 2007, productivity by hour increased in Spain. Employment shrank as a result of the financial crisis. The level of employment fell faster than production (mostly those workers that didn't aggregate value to the chain were fired). As a result, when we divided production by hour worked productivity increased. On the contrary, rising wages in China were not compensated with increasing productivity. This effect is seen in graph 4. The labor productivity per hour worked in 2014 is 5 times bigger in Spain than in China.

Regarding labor productivity per person employed (graph 5), it increased in Spain as well due to the same reason. Since 2007, those Spanish workers that keep their positions are those who create greater value to the value chain.

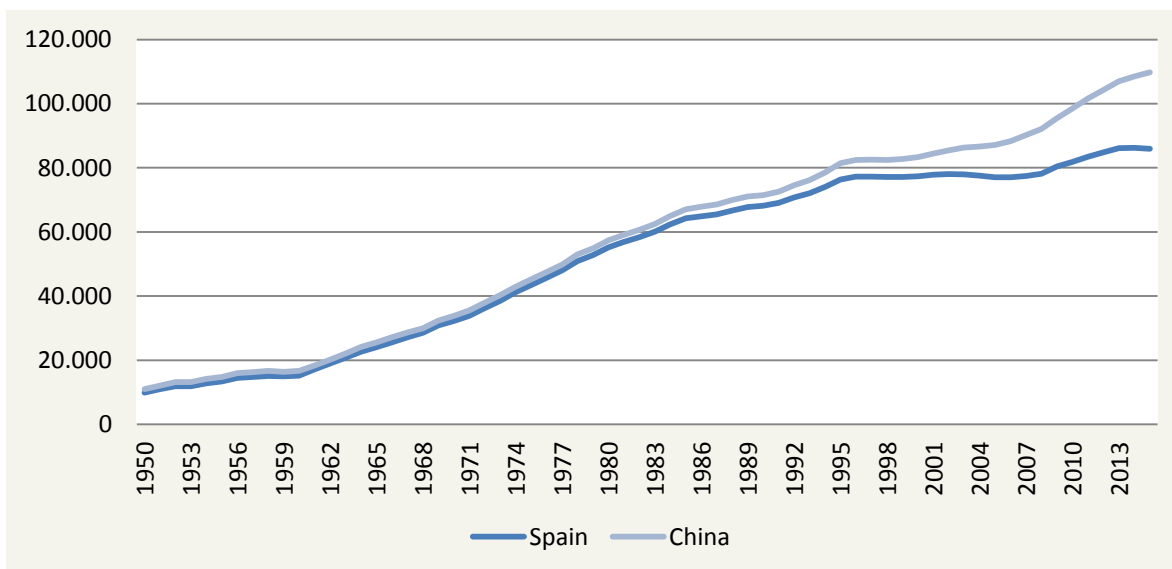
Looking at graphs 4 and 5, one could misinterpret that Chinese workers are more productive than Spanish. This interpretation is wrong. A Chinese worker produces more in a year than Spanish not because they are more productive but because they work more hours. See this reasoning in graph 6.

Graph 4: Labor productivity per hour worked for China and Spain in 2014 US\$ (converted to 2014 price level with updated 2011 PPPs)



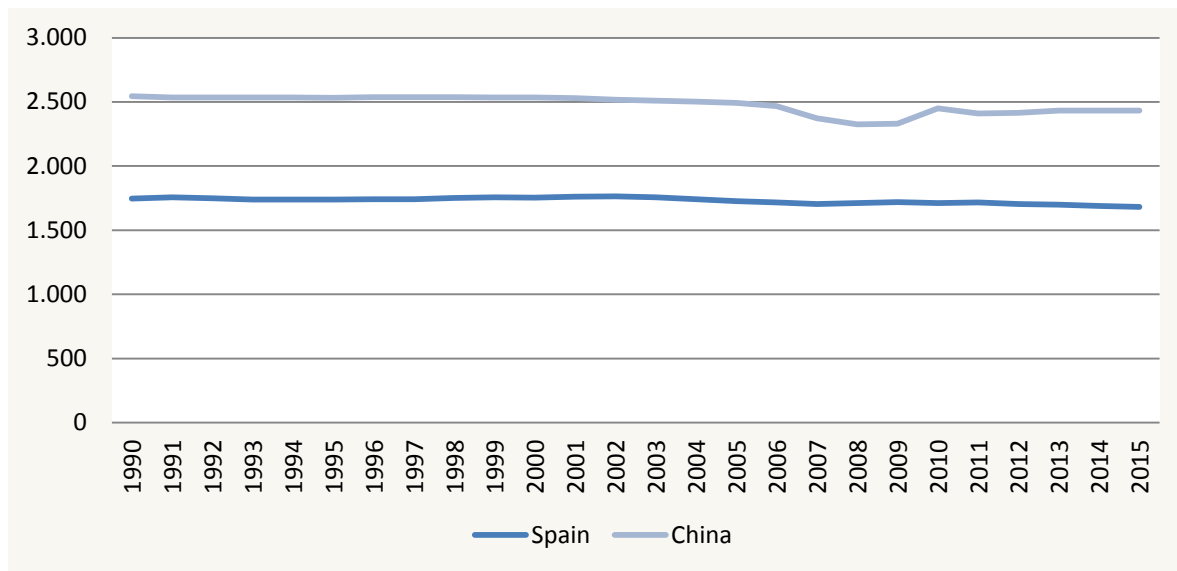
Source: Own elaboration based on data from The Conference Board. 2015. The Conference Board Total Economy Database™, May 2015, <http://www.conference-board.org/data/economydatabase>.

Graph 5: Labor productivity per person employed for China and Spain in 2014 US\$ (converted to 2014 price level with updated 2011 PPPs).



Source: Own elaboration based on data from The Conference Board. 2015. The Conference Board Total Economy Database™, May 2015, <http://www.conference-board.org/data/economydatabase>.

Graph 6: Annual hours worked per worker in China and Spain.



Source: Own elaboration based on data from The Conference Board. 2015. The Conference Board Total Economy Database™, May 2015, <http://www.conference-board.org/data/economydatabase>.

In 2014 Spanish workers worked 1700 hours per year while the Chinese 2500 hours a year.

This is basically the explanation for the results of graph 6 which is the result of dividing the productivity per worker of graph 5 by the productivity per hour of graph 4.

Chinese low productivity and rising wages explains how the savings gained from outsourcing to China are dropping for many companies. Employers would rather employ workers that produce 50\$ in one hour than those producing 10\$ when their production is labor intensive and wages are not cheap enough to compensate for the low productivity.

Moreover, measures to increase productivity in China such as automation won't be enough. If companies install new equipment, production lines or invest in automation, the labor content of the products will be undercut. Robots will be making the product. China has long based its competitiveness on abundant and cheap labor that will not be needed anymore. Many companies would probably decide to install and build the new equipment in their factories at home.

Prices for **natural gas and electricity** evolved in a similar manner in China and Spain as shown by the 2014 BCG Global Manufacturing Cost-Competitiveness Index in table 2. Overall energy costs in both countries are 4 times higher in 2014 than they were in 2004. This has had a significant impact on the chemicals industry, which uses natural gas as a feedstock for

production. For some other industries with high energy costs such as iron and steel industry or aluminum the energy bill can represent up to 30% of total production cost.

A competitive economy needs affordable energy prices. Massive taxes and levies, previous year's deficit amortization and expensive primes to renewable energies make energy cost in these countries unattainable.

4.1.2 Wage advantage of offshoring from Spain to China.

Illustration 4 compares the wage advantage of offshoring production from Spain to China in 2000 and 2014. Spanish productivity by hour in 2000 was 22 times Chinese productivity. However, in 2014 as Chinese productivity increased considerably, Spanish productivity by hour worked was 5.66 times the Chinese.

Average annual wages in local currencies have been translated into US Dollars using historical rates for both years. Dividing average annual wages (USD/year) by annual hours worked per worker (h/year), we come up with average hourly wages (USD/h).

Wages need to be adjusted for productivity. In 2000, what a Spanish worker produced in one hour took 22 hours for the Chinese. Thus, to obtain the same outcome from both employees, employers could choose from paying one hour to the Spanish worker at the expense of 11.50 USD or paying 22 hours to the Chinese worker at 8.174 USD ($0.37\text{USD} \times 22\text{h}$). On that date, basing the decision on these results, employers likely chose to save money and employ the Chinese worker. Concretely, they were saving 3.33USD the hour. In other words, it was 28.93% cheaper to hire a Chinese.

In 2014, things have turned around. The Chinese is more productive and earns higher salaries. Moreover, while the euro depreciated over the dollar the Yuan followed the opposite direction. From 2000 to 2014 Spanish wages got 193USD more expensive in dollar terms, the Chinese increased by 6608.24USD in part due to exchange rates fluctuations. As a result, when wages are adjusted for productivity this year, employers may not hire the Chinese anymore. Changing conditions had made the Chinese worker more expensive than the Spanish. From having a cost advantage of 28.93% in 2000, one decade later in 2014, hiring Chinese workers implies a 45.96% cost disadvantage.

Illustration 4: Wage advantage comparison of China and Spain for 2000 and 2014.

		Spain	China
Productivity by hour worked (\$/h)	2000	44	2
	2014	51	9
Annual hours worked per worker (h)	2000	1753	2534
	2014	1689	2432
Average annual wages (Local currency/year)	2000	18578	7794
	2014	26884	46431
Historical rates (Local currency/ USD)	2000	0,9214	8,2781
	2014	1,3207	6,15
Average annual wages (USD/year)	2000	20162,80	941,52
	2014	20355,87	7549,76
Average hourly wages (USD/hour)	2000	11,50	0,37
	2014	12,05	3,10
Wages adjusted for productivity (USD/hour)	2000	11,50	8,174
	2014	12,05	17,591
Wage advantage from outsourcing to China		<i>USD/ hour</i>	<i>%</i>
		2000	28,93%
		2014	-45,96%
<i>Cases:</i>			
Labor content of a good represents 25% of Total Cost (28,93% wage advantage becomes 7,23%,)	2000	7,23%	
	2014	-11,49%	
Labor content of a good represents 75% of Total Cost	2000	21,70%	
	2014	-34,47%	
<i>Notes:</i>			
Average wages are those of employed people in urban units in the manufacturing sector.			
Local currency; Spain (EUR), China (CNY).			
Historical annual average rates in EUR/USD and CNY/USD.			
Labor productivity per hour worked in 2014 US\$ (converted to 2014 price level with updated 2011 PPPs)			
Penn World Tables have not been used for this exercise as the last available exchange rates are those in PPT8.1 (until 2011 in cte prices of 2005.)			
<i>Sources:</i> Own elaboration based on data from National Bureau of Statistics of China, China statistical Year book 2014; OECD.Stat; The Conference Board. 2015, The Conference Board Total Economy Database™, May 2015; Historical rates taken from OANDA Corporation web page.			

4.2 Could Spain be seen as a potential location for Reshorerers?

Mexico and the USA, countries possibly seen as potential locations, count with low wage growth, sustained productivity gains, stable exchange rates and energy-cost advantage. Regarding Spanish market conditions, could Spain be seen as a potential location like these two countries?

Table 3: Average manufacturing cost index of Spain relative to the USA and Mexico in 2004 and 2014.

	2004	2014
USA(base=100)	100	100
Spain	104.2	108.6
Mexico (base=100)	100	100
Spain	113.1	118.6

Sources: Own elaboration with data from The BCG Global Manufacturing Cost-Competitiveness Index, August 19, 2014. Available at bcg.perspectives.com by The Boston Consulting Group.

Spain's estimated manufacturing cost disadvantage over the USA and Mexico has increased 4.4% and 5.5% respectively from 2004 to 2014 (table 3). Which are the main forces behind the cost competitiveness loss of Spain with respect to these countries during this decade?

Table 4: Average manufacturing cost index decomposed for Mexico, the USA and Spain for 2014 (Spain=100).

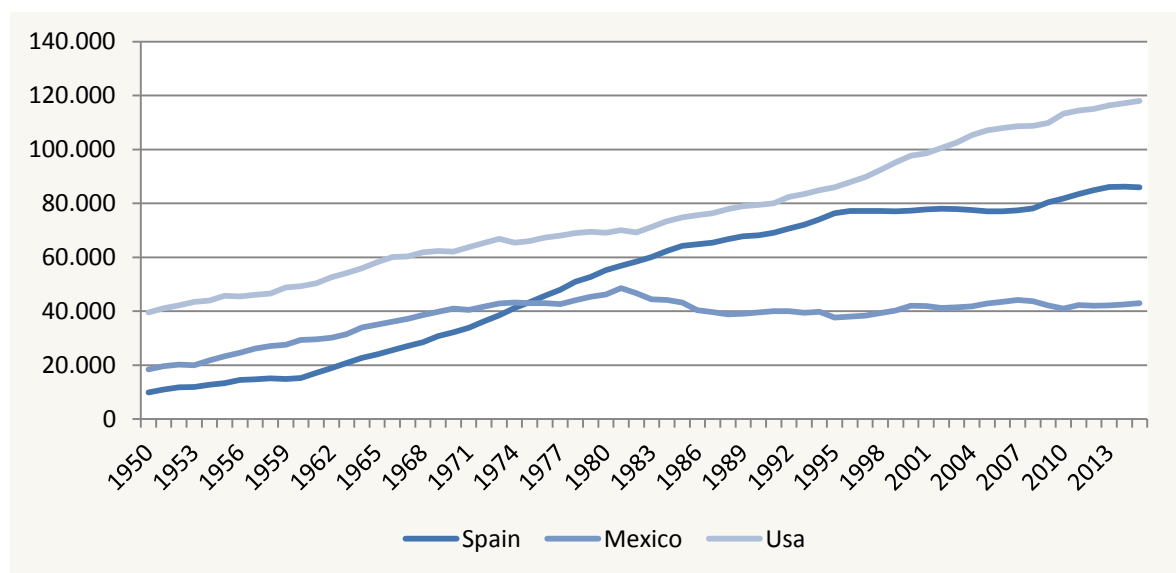
	Mexico	USA	Spain
Labor	8.2	16.8	20.9
Electricity	1.8	1	2.2
Natural gas	1.4	1.4	3.9
Other	73	73	73
TOTAL	84.4	92.2	100

Sources: Own elaboration with data from The BCG Global Manufacturing Cost-Competitiveness Index, August 19, 2014. Available at bcg.perspectives.com by The Boston Consulting Group.

As table 4 shows, USA's labor is cheaper than Spanish. It does not mean that wages in the USA are lower but that Spanish workers are less productive than workers from the States. Graph 7 shows labor productivity per person for Spain, the USA and Mexico. The most productive workers are those from the States. High productivity levels compensate wages in the USA which are the highest (Graph 8).

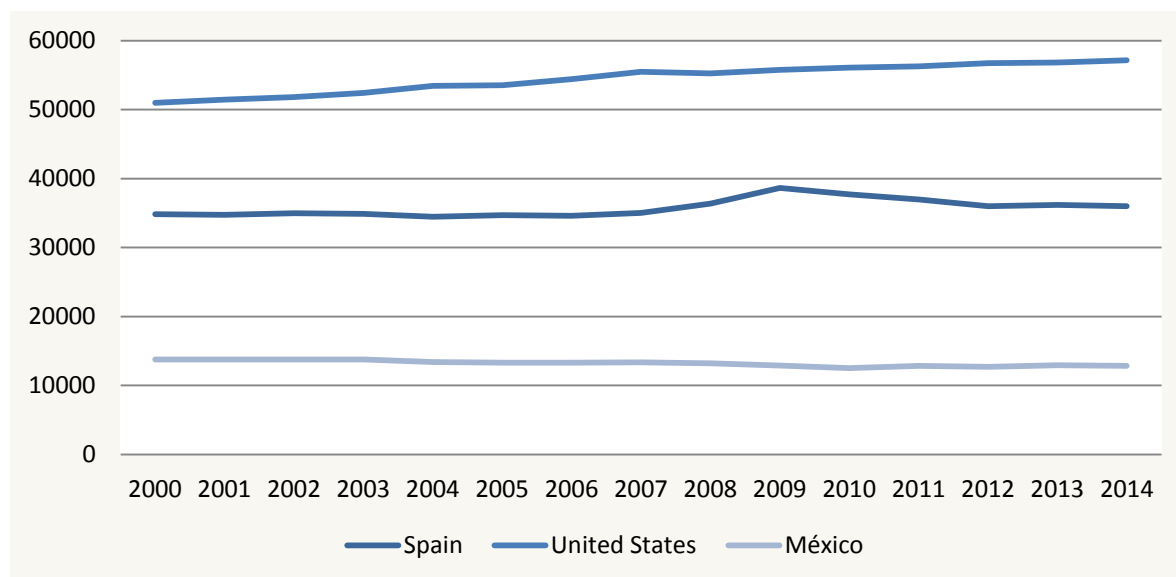
The case for Mexico is totally different. Mexico's labor is cheaper because wages are really low. In Mexico salaries are cheaper than in Spain. However, Spanish workers are more productive than the Mexicans. In any case, Table 4 already shows wages adjusted for productivity.

Graph 7: Labor productivity per person employed for Spain, Mexico and the USA in 2014 US\$ (Converted to 2014 price level with updated 2011 PPPs).



Source: Own elaboration based on data from The Conference Board. 2015. The Conference Board Total Economy Database™, May 2015, <http://www.conference-board.org/data/economydatabase>.

Graph 8: Average annual wages for Spain, Mexico and the USA in US\$ (2014 constant prices at 2014 USD PPPs).



Source: Own elaboration based on data from The Conference Board. 2015. The Conference Board Total Economy Database™, May 2015, <http://www.conference-board.org/data/economydatabase>.

Prices for natural gas have fallen by 25 to 35 percent since 2004 in North America because of large-scale production of shale gas.³⁰ However, in Spain prices have risen sharply. Particularly Spain pays the most expensive electricity bills in Europe.³¹

Of course, factors other than wage rates, productivity, exchange rates and energy costs also weigh heavily on corporate decisions about where to focus supply chains. Logistics costs, the overall ease of doing business, and the presence of corruption –among other issues- can affect the attractiveness of potential locations. These factors are not modeled in the BCG Global Manufacturing Cost-Competitiveness Index but must account for decision making.

Table 5: Secondary factors that influence corporate decisions about supply chain location.

	Overall business environment ranking ¹	Ease-of-doing-business ranking ²	Logistics performance ranking ³
USA	7	7	9
Spain	25	33	18
Mexico	32	38	28
China	50	84	50

Sources: Own elaboration based on indicators from 1 The Economist Intelligence Unit, BER 2014, 2 World Bank Ease of Doing Business Index, Dec 2015, 3 World Bank Logistics Performance Index 2014.

Developed economies in North America, Western Europe and Asia remain the best places to do business, according to The Economist Intelligence Unit's latest Business Environment Rankings (BER). The 2014-18 ranking locates Spain at position 25, China at 50, USA at 7 and Mexico at 32.³²

The Ease of doing business ranking from the World Bank ranks economies from 1 to 189, with first place being the best. A high ranking (a low numerical rank) means that the regulatory environment is conducive to business operation. (1=most business-friendly regulations). The 2015 ranking locates Spain at 33 position better located than Mexico and China which are at 38 at 84 respectively but worse than the USA which is located at position number 7.³³

³⁰ Heesun Wee (19Aug2014). Why the 'Made in China' model is weakening. CNBC. Available in: www.cnn.com

³¹ Taking bi-annual data (from 2007 onwards) available in Eurostat, Spanish domestic consumers pay the most expensive electricity prices. Gas prices do not differ that much. Industrial Spanish consumer's prices do not show a representative picture as most particular manufacturers negotiate particular prices with electricals.

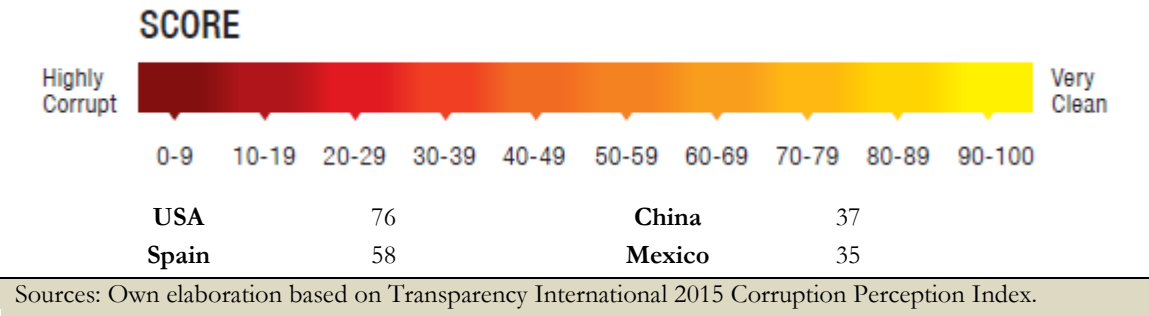
³² The Economist Intelligence Unit (2014). Business Environment ranking, *Which country is best to do business in?*. Available at www.eiu.com

³³ The World Bank Group (22Dec2015) World Development Indicators. *Economy rankings* available at www.doingbusiness.org/rankings.

The World Bank Logistics Performance Index (LPI) allows countries to identify the challenges and opportunities they face in their performance on trade logistics. The 2014 LPI allows comparisons across 160 countries. It compiles information considering six indicators; border control agencies, infrastructure, competitively priced shipments, tracking and tracing, timeliness and quality of logistics services. It grades Spain at position 18 in the 2014 last available ranking having improved from previously year's rankings. China and Mexico are losing positions over years while the USA remains stable at the ninth place of the ranking.³⁴

The Transparency International Corruption Perception Index (CPI) available from January 2016 measures the perceived levels of public sector corruption worldwide, and it paints an alarming picture. Wise manufacturers will be very cautious to drive their production plans to countries such as Mexico or China where the level of corruption perceived is relatively high.

Table 6: Transparency International Corruption Perception Index (CPI).



Manufacturing growth which is very attractive in Mexico could be stunted because of weaknesses in these areas. Spain should still make an effort to improve its positions on these rankings. Nevertheless, it represents a more adequate option for production rather than China or Mexico. If Spain would like to become a powerful country like the USA and destination of manufacturing plants still has to work on transparency, keep on improving logistics infrastructures and ease the process of doing business as to occupy a better position in the World Bank ease-of-doing business ranking.

³⁴ The World Bank (2014) Logistics Performance Index. *LPI Global Ranking 2014* available at <http://lpi.worldbank.org/international/global>.

5. RESHORING CASES

5.1 American cases studies.

The Outdoor Great Room Company - When the Minnesota-based Company started in 2003, it found that outsourcing the manufacturing of its outdoor products including fire pits, fireplaces, pergolas and outdoor kitchen equipment to China was more cost effective than manufacturing in the United States. Yet, in 2010, the company brought all of its production back to America. In making its decision, the company cited several key factors: growing frustration with long shipping delays and quality control issues; and greater efficiencies by having production and distribution centralized at company headquarters in Eagan, Minnesota. The company was also motivated to help the USA economy by bringing jobs to America that were previously held by Chinese workers.³⁵

Buck Knives – The iconic American company has been making hunting knives in California and Idaho since 1902. Around 2000, however, under pressure from big-box retailers to lower its prices, the company started outsourcing half of its production to China to lower its labor costs. The company recently made the decision to gradually move all China-based production back to the United States. Half of Buck Knives' overseas production has already been moved back to Idaho, with the remainder to be “reshored” over the next few years. In explaining why the company brought production back to America, the company's chairman reported that Buck Knives suffered from a loss of customer goodwill, and eventually sales, when its products started carrying a “Made in China” label. Now that the knives are “Made in the USA,” customer goodwill and sales have improved dramatically. Other factors that contributed to the company's reshoring decision were the long lag times for ordering products from China and the frequently changing market conditions by the time the orders arrived from overseas. With production now taking place in Idaho, the company has greater flexibility to adjust production levels quickly to meet fluctuations in customer demand.³⁶

³⁵ *Manufacturing in our favor*. A Global Reallocation of Manufacturing by Mark Perry. Business Horizon. A U.S. Chamber of Commerce Foundation publication (2011).

³⁶ *Manufacturing in our favor*. A Global Reallocation of Manufacturing by Mark Perry. Business Horizon. A U.S. Chamber of Commerce Foundation publication (2011).

Sleek Audio is a Florida-based company that designs, produces and sells expensive, high-end earphones that retail for \$250. In early 2010, it decided to move 100 percent of its production from China back to the United States after experiencing the common frustrations frequently cited about manufacturing in China: delivery delays; frequent problems with quality; long and costly trips to China to coordinate production; rising shipping costs; and large company cash investments in inventory that can take up to six months to produce, ship 8,000 miles, and clear customs. After moving production from low-wage China back to the United States, Sleek Audio compensated for the higher USA hourly labor costs by pursuing a common “reshoring” strategy: it redesigned its products with labor content in mind and an emphasis on minimizing actual assembly time. In other words, companies that reshore frequently “innovate around cheap labor” by finding less labor-intensive methods of production and instead using automation, robotics, and advanced technology to minimize labor costs.³⁷

Illustration 5: Selection of American companies as examples of Reshoring cases studies.

Company	Case overview	Why
Sleek Audio	Production of high-end earphones has moved from Dongguan (China) back to Florida.	<ul style="list-style-type: none"> • Quality problems. • Delays and shipping costs.
Outdoor Great Room Company	Outdoor products manufacturing moved back to Minnesota after 7 years producing in China.	<ul style="list-style-type: none"> • Shipping delays • Quality control issues • Decentralization disadvantages
Buck Knives	Manufacturing hunting knives in California and Idaho since 1902. Back in the States after moving to China in 2000.	<ul style="list-style-type: none"> • Loss of customer goodwill and sales due to “Made in China” labeling. • Lag times. • Flexibility to adjust to demand.

Source: for sources see main text.

5.2 European cases studies.

Adidas produces 258 million pairs of shoes each year in low-cost Asia. Its future plans focus on Germany where they are working hard in order to shift footwear industry. In this European renaissance, Adidas would like to become a key player by heading an epic movement as the one led by its competitor Nike when outsourcing to Asia decades ago. "We will bring production back to where the main markets are," Adidas Chief Executive Herbert Hainer said.

³⁷ *Manufacturing in our favor*. A Global Reallocation of Manufacturing by Mark Perry. Business Horizon. A U.S. Chamber of Commerce Foundation publication (2011).

"We will be the leader and the first mover there".³⁸ Adidas is working with companies like automotive supplier Johnson Controls, robotics experts Manz and knitting machine maker Stoll on new processes as it targets prototype in-store manufacturing. Adidas hopes to be able to produce a custom-made running shoe from scratch in a store in Berlin by next year, using a stitching machine and a foamer to make the sole.

Illustration 6: A German company as example of Reshoring case study.

Company	Case overview	Why
Adidas	Producing actually 258Mn pairs of shoes in Asia. Future plans focus on Germany.	<ul style="list-style-type: none"> Proximity to its main markets.

Source: for sources see main text.

5.2.1 Spanish Cases studies.

Cases studies included in this section have been elaborated through original information given by several Spanish companies. The author of this paper got in touch via email with some representatives of AYB Hislabor Décor SL, Ficosa SA, Orbea sociedad cooperativa or Papeles Aralar SA. All of them answered to a first contact email (general model in Appendix 2) followed by some brief mail chats sharing points of views and feelings towards the topic. Babyauto which is the company that motivated the elaboration of this research paper is carefully studied in section 6.

AYB HISLABOR DECOR SL is a big Spanish group located in Valladolid with more than twenty-five years of experience in haberdashery, craft and trimmings within the fashion sector. Founded in 1880 the company started by producing ribbons, laces and passementerie. In 1985 the group introduced new products to its line and for the last 30 years has combined production processes in both Asia and Spain.

The company trademarks are; Cose, main and reference brand; Softy, well-known brand for bra accessories and laces and, the one aimed to dress homes; Ladecor.

Through a mail interview with a company representative we got to know that the company is committed to prioritize future investment at home. The brand produces purely mechanic articles for the textile sector in their Spanish facilities. At the same time, their Chinese filial is in

³⁸ Emma Thomasson (2015). *Robots could restore "Made in Germany Labels to Adidas shoes"*. From Reuters, U.S.Edition, Available at www.reuters.com.

charge of controlling external production requiring advanced machinery and producing labor intensive articles.

Commercial channels' agility and quality standards are essential for a company operating in the fashion textile sector such as HyB Hislabor. Immediacy turns essential. Taking into account that distribution from China is messy, expensive and basically slow (from 29 to 35 days to most European cities), the brand normally uses air transport. As a result, transportation cost increases between 5€ to 10€ per kg.

As a whole, Chinese and Spanish competitiveness are difficult to evaluate. The comparison criteria will always depend on each particular product. Broadly, it could be said that for labor-intensive products Asia is still more competitive; "As labor costs in some Chinese coastal areas are increasing, most companies derive production to inland provinces which mitigate final cost increases". On the other hand, for purely mechanic products, Spain can be competitive as well.

They do not have the intention of bringing full production back to Spain. However, as disclosed in the interview, their priority is to gradually increase production capacity in Valladolid. Logically, in the medium run, this will lead to lower production in China and greater at home.

In short, the company has expectations about Spain becoming a manufacturer country as it was years ago. However, as stated, the transition does not depend on labor costs alone and will take time.

FICOSA SA is a multinational corporation operating in the automation sector devoted to the research, development, production and commercialization of systems and parts for commercial and industrial vehicles. Founded in 1949 has its headquarters in Barcelona (Spain). The company has presence in Europe, Asia, North and South America. The brand is official supplier and technological partner of the vast majority of vehicles companies all around the World.

Ficosa International's Asia CEO told us in a mail interview "We do not contemplate returning production back to Europe as our main markets are here in Asia". Moreover he added "It is truth that China has lost great competitiveness but this is affecting principally those companies dedicated to export from China. It is not our case". The transition from the "made in China"

to the “made for China” that we are observing in this paper was something clear for him nine years ago.

ORBEA SOCIEDAD COPERATIVA INDUSTRIAL is a bicycle manufacturer from the Basque Country (Spain). Part of the Mondragon Cooperative Corporation and Spain’s largest bicycle manufacturer.

The company’s brand Orbea which designs and builds bicycles decided last year to close its factory in Shanghai. The move was aimed to invest on a new production plant in Portugal. As confirmed through an email interview with a company’s representative, the new plan objective of establishing production facilities in Portugal was to gain proximity towards Orbea’s principal markets.

The company’s clothing brand Orca started last year the processes of bringing production back from Asia to Europe following the clear group’s strategy of reshoring.

PAPEL ARALAR S.A. is a Spanish paper manufacturer located in the Basque Country. Beginning in 1936 the company has always had the latest technology in paper manufacture and counts today with an extensive network of agents and offices in more than 30 countries.

This company has one of its offices in Hong Kong. Their Asian office is just in charge of commercializing and distributing what is made in Spain. Production has always been kept at home. The company ensures through their international offices that the product arrives at its destination on time and in perfect quality conditions.

The following cases studies have been elaborated from press releases.

“China is not what is used to be” explains Luis Berbegal president of Injusa and one of the Spanish toys manufacturers with higher volume of sales above 20 millions of euros. Chinese market is very rigid and has its own production rules (high order volume, long delivery time, payment in advance) which are not easy to accomplish taking into account that in our country we are suffering from a severe economic crisis, consumption has decreased and financing is expensive to obtain. According to Berbegal, lack of stability and low quality controls represent among others the reasons why Injusa returned back to Spain to the well-known *Valle del juguete* in Ibi, Alicante. In 2001, Injusa established a great part of its production in China. Concretely,

they built their plants in the Chinese city of Dongguan which is famous for welcoming a great part of total world's toys production. In October 2010 they returned full production back to Spain.³⁹

José María Municio, manager and member of the board of directors of Merletti, parent company of Dándara, a clothing brand, said “Adding up rising labor costs, transportation costs and duties, we realized that there is not much difference between producing in Spain or China”. This company decided to return back production after eight years producing in Dalian, northeast of China. Dándara, the commercial brand of Merletti, produced between a 60% and a 70% percent of its production overseas. By coming back home the company has created new job opportunities for Spanish workers and brought the possibility of opening a bunch of workshops which were closed since the beginning of the crisis.

Illustration 7: Selection of Spanish companies as examples of Reshoring cases studies.

Company	Why	Destination
Injusa	<ul style="list-style-type: none"> • Rigidity • Chinese production rules; payment in advance (together with lack of finance from home). • Quality controls 	<ul style="list-style-type: none"> • Ibi, Alicante
Dándara	<ul style="list-style-type: none"> • Rising labor costs. • Transportation and duties. • Agility and client service quality 	<ul style="list-style-type: none"> • Castilla-La Mancha • Extremadura • Madrid
Tempe	<ul style="list-style-type: none"> • Rising costs in China • Closer suppliers to better control quality 	<ul style="list-style-type: none"> • Elche, Alicante
Juguettos	<ul style="list-style-type: none"> • Exchange rate risk • Transport and duties • Stock's breakdown risk 	<ul style="list-style-type: none"> • Onil, Alicante
Lenita & XTG	<ul style="list-style-type: none"> • Agility 	<ul style="list-style-type: none"> • Canarias
Modas Zarpa	<ul style="list-style-type: none"> • Reliability, seriousness • Chinese production rules 	<ul style="list-style-type: none"> • Málaga
<p>Note: These companies bring production back to Spain but still keep part of it in China. Sources: <u>Injusa</u>, Javier Alfonso (3/06/2011). <i>La juguetera Injusa cierra en China y taslada toda su producción a España</i>. From elEconomista, available at www.eleconomista.es. <u>Dándara</u>, <u>Lenita&XTG</u>, S.Riera/C.Pareja/S.García (03/0282014). <i>Made in Spain: en la fábrica de Lenita&XTG, Dándara y Mascaró</i>. From modaes.es, available at www.modaes.es. <u>Juguettos</u>, M^aJosé Cruz (29/07/2012). <i>Juguettos trae a España la producción de muñecas</i>. From Expansión.com available at www.expansion.com. <u>Zarpa</u>, J.J.Buiza (16/11/2014). <i>¿Aún sale más a cuenta fabricar en China que en Málaga?</i>. From diariour available at www.diariour.es/economia. <u>Tempe</u>, F.D.G. (05/04/2015). <i>Tempe, el socio de Inditex en Elche bate su propio récord</i>. From El Mundo available at www.elmundo.es.</p>		

³⁹ Elena del Estal (16April2013). *Vuelve lo que China se llevó*. From TIEMPO, Available at www.tiempodehoy.com/economia.

6. BABYAUTO

Babyauto is given special consideration and an isolated section in this research as the article published in *Diario de Navarra* about the company was the principal factor leading the author to write this thesis. As the paper starts by presenting this company's case, it finishes by studying it in depth thanks to its special support and collaboration.

The economic competitiveness loss in some specific production costs in China together with its middle class boom and extensive demand for Western's products, have lead manufacturers to undertake the new denominated process of "global manufacturing restructuring". Babyauto is a good example of *reshoring*, a company leaving China and returning back to its origin country. Even if the company maintains its Chinese suppliers, it transfers parts of its production chain back to Spain.

The Spanish company Safety Babyauto SL, based in the Basque Country, belongs to Babyauto Group and is one of the main child safety car seats producers. The company once started by producing car seats and strollers in Taiwan but after the rise of Taiwanese salaries in 2001, the company shifted production to the Chinese province of Zhejiang.⁴⁰ Babyauto takes care of travelling comfort for families travelling on car. It is specialized on child restraint systems which are meticulously designed to absorb accelerations generated after potential impacts or sudden stops. Vehivial, its research group from the University of Zaragoza, works on the design and optimization of ground vehicles and the application of new materials in them.

For this company and regarding manufacturing competitiveness, the euro/dollar relation is a key factor. Purchases in Asia are made in dollars while products sold in Europe are denominated in euros. A beneficial exchange rate between the euro and the dollar is fundamental for Spain (and Europe) becoming competitive in a productive level. Other factors may work in favor such as labor force qualification or intellectual property regulation, but still the euro/dollar rate is determinant for the company activity.

Intellectual property regulation is an important aspect for companies investing in R&D like Babyauto in this case. Property theft in China is assumed as something normal in daily activity

⁴⁰ Concretely, the company is located in the city of Ningbo, one industrial city in the province of Zhejiang. This one is right below Shanghai province.

as regulation is, in most cases, inexistent. Samples are transferred within plants without any control or patents protecting them. In addition to this, the complexity of the process of patenting in China and procedure rules in case of taking legal actions against someone, affect negatively foreign companies operating there.

As stated by the company, Chinese workers see how their prices and salaries are considerably increasing. As a result, they are demanding better working conditions or rights such as the right for strike. Until now, all those working advantages that Western workers gained during the years of the Industrial revolution were unknown for Chinese workers. Apparently, young Chinese workers generations demand rights that their parents unknown.

Back in Spain, the company produces in Tudela and Murcia. Producing in these localities allows the company to add the “Made in Spain” labeling to their products thus creating higher value for Chinese consumers. Those consumers are willing to pay extra money and the firm’s revenues margins notably increases. Nevertheless, covering Chinese demand for seats could be challenging for the company taking into account that only in 2013 there were 18.440.000 births and 15 million cars were sold in China.

The company is considering different alternatives about how to balance production load before demand booms in the Asian country. Demand has not exploded yet as there is not a national law requiring citizens to use Child Restraint Systems (CRS) everywhere in China. There are only some regulatory laws in the provinces of Shenzhen, Shanghai and Shandong, but demand is expected to increase progressively by provinces.

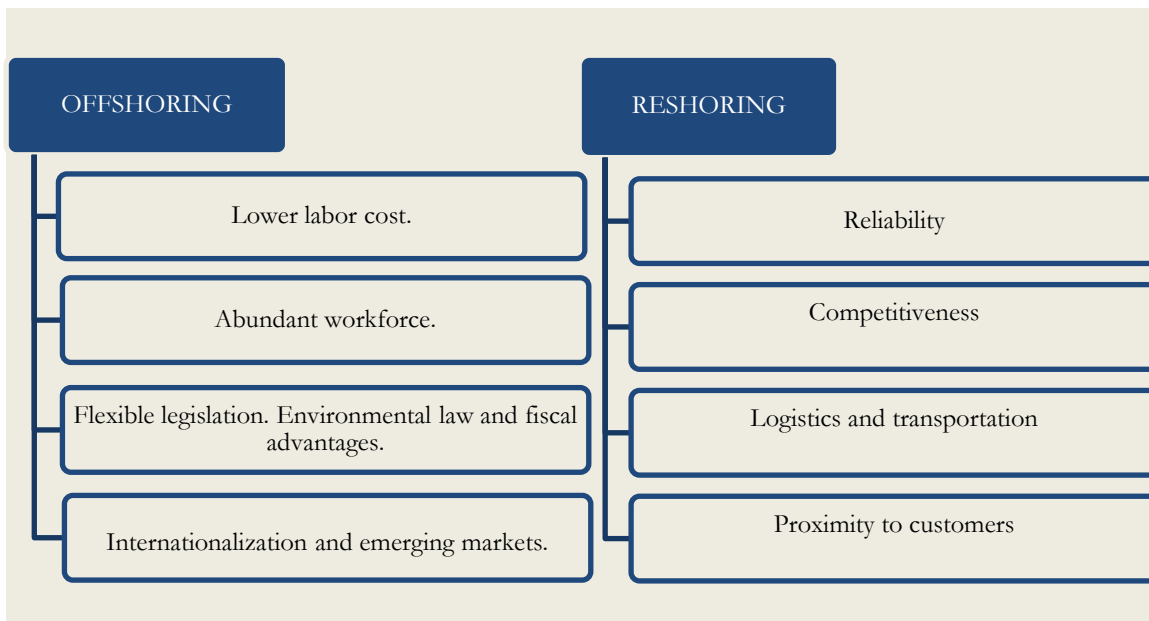
It is predictable that companies considering decisions about driving production back to Spain need the support from the Spanish Government and Institutions. For years Spain hosted great production facilities and capacity. However, during the last years Spanish Institutions are giving priority to sectors such as tourism or services thus forgetting about enhancing production capacity. Unfortunately, the tendency these days is to open beach bars rather than production plants.

This company recalls the importance of measures taken by UE institutions. If European Governments are to regulate the entry of “Made in China” labeled products through its barriers, global production landscape which change in many parts of the World.

Last year, Turkey established an imports tariff that cut the entry of Chinese products to its markets. Babyauto rapidly saw how many Turkish buyers visited them in the International Exhibition in Cologne demanding products labeled with “Made in Europe”. Institutions and specially the UE play a key role at the time of enhancing industrial activity in Europe.

As a general overview before concluding, similar to what Babyauto is doing, there are multiple Spanish manufacturers changing their production strategies. Most complicated processes or high products ranges are driven back to Spain while the part of the production which in China is no longer profitable is driven to other Southeast Asian countries. Illustration 8 shows the main reasons for companies to offshore decades ago and reshore these days.

Illustration 8: Allocation decisions.



Source: Own elaboration.

7. CONCLUSION

The restructuring of global manufacturing implies a lot of change as multinationals redistribute their activities selectively around the World. New decisions about how and where to produce are taken, factories open and close from one day to another and employment shifts as a result.

The allocation decision pattern follows diverse directions not depending on a dominant reason but on what is dominant in each particular product; product composition and type of technology. As the gap in wages narrows further, other factors become as well fundamental; workers skills and labor flexibility, labor reforms, cluster of industries, logistics and infrastructure, incentive, tax regulation and transportation costs.

However, choosing the right location for manufacturing is an inexact science. Some are leaving, some are coming and some are moving to different locations. Offshoring in its traditional sense, driving companies to another part of the globe in search of cheap labor, persists but is being reversed towards a more complex scheme.

Some manufacturers turn back part of the production into their in-house plants once work has been partly automated. Those are called *reshorers* following a *reshoring* strategy. In this case, as processes get automatized, the number of jobs returning will be smaller than the number lost in the first place. Reshorers could be as well trying to encourage innovation by bringing together manufacturing and R&D centers.

There are as well manufacturers still *offshoring* and *outsourcing* production. Even if they are still moving production overseas it would not be appropriate to call them offshorers in the traditional sense. Those that offshore these days pretend to sell their products on such markets that once were sources of cheap labor. In other words, they look for proximity to fast-growing new markets which will cover great part of the demand for manufactured goods in the near future. As they would like to be there on the ground, onshorers could be a new interesting term referring to them.

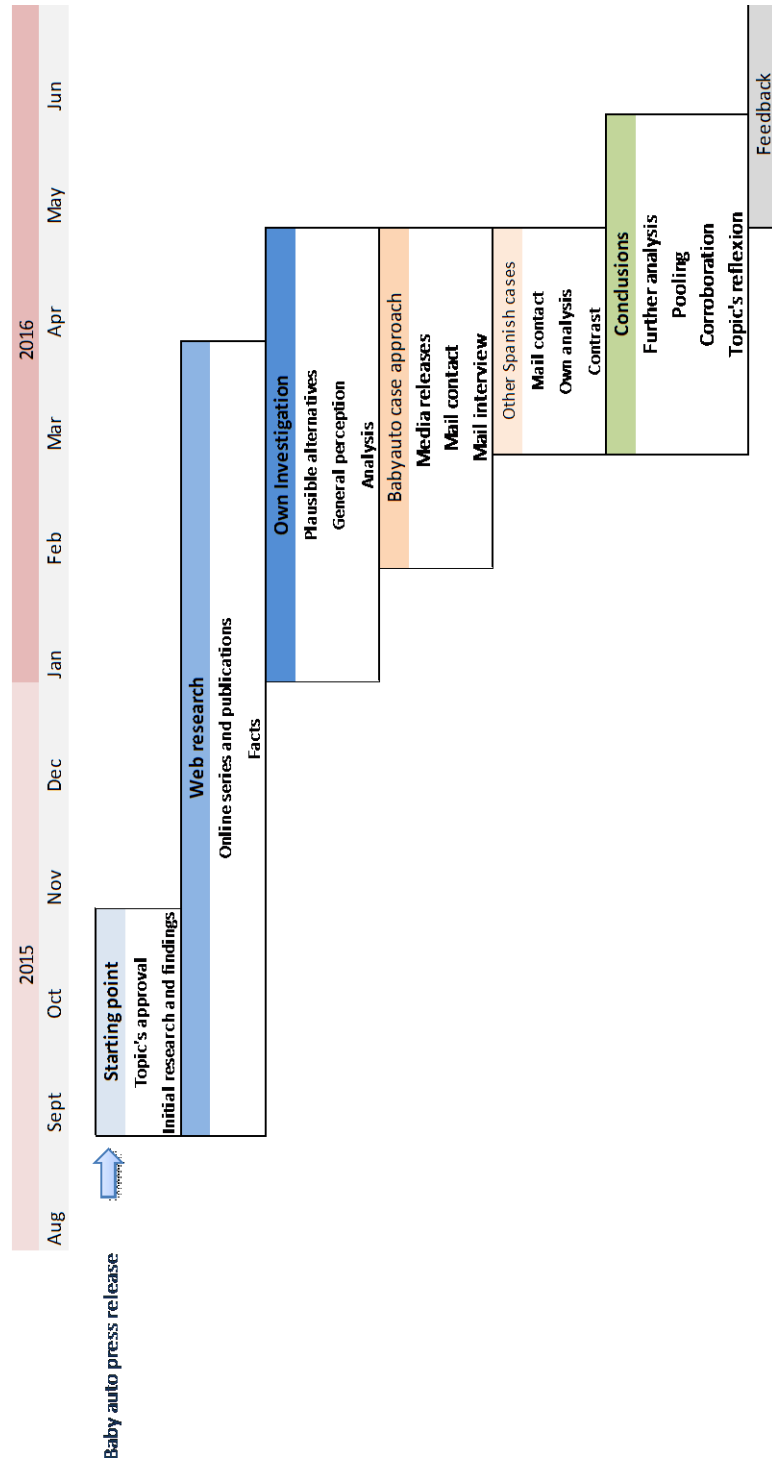
New chosen destinations may welcome some of the industries and activities that moved abroad decades ago. This will depend as well on each particular product. For those products that still have high labor content and are sold in Asian markets, manufacturing in Chinese inland provinces still makes sense. Heavy machinery or those products which are expensive to

transport will be brought closer to its main markets. In some industries, such as fashion textile or shoes, in which quality, safety, agility and timing are crucial; production will probably pivot given priority to booming markets.

What was read and studied in the several articles cited through this document has been proved and applied to real Spanish cases. The outcome of the interviews and corporate allocation experiences included in this research paper confirm our initial suspicions about this new global trend in manufacturing sourcing. This article provides a small sample of manufacturers rethinking their allocation strategies.

From the author of this paper point of view, manufacturers these days face a panorama in which their operations are spread around and quickly responses are fundamental to compete on a global scale. There is not a best or recommended strategy. A global company from today has to be global enough as to take advantage of short-term changes in World's trends and economies.

Appendix 1: Research strategy chronogram



Appendix 2: Mail sent to Spanish manufacturers operating in China.

Estimado Sr. /Sra.,

Soy Silvia Traibuenas Peralta. De Pamplona y estudiante en la Universidad Pública de Navarra de la Doble carrera Internacional en Administración de Empresas y Economía.

Actualmente, estoy trabajando en mi trabajo final de la carrera sobre la pérdida de competitividad de costes en China, la nueva distribución global de empresas manufactureras y tendencias de vuelta a casa, que se conoce como "reshoring".

Hay empresas españolas que ya han iniciado el retorno de toda o parte de la producción a España. *Babyauto, Tempe, Injusa, Dándara, Modas Zarpa... son buenos ejemplos de ello.*

Sería muy interesante para mí conocer si ustedes también se han planteado la posibilidad de pivotar parte de su producción a España, están en proceso de hacerlo o no lo consideran una opción en absoluto.

Cualquier tipo de información que pudiera aportarme será, sin ninguna duda, muy enriquecedora. Mi proyecto es un papel corto, de unas 40 páginas, y con finalidad académica.

Gracias por su atención de antemano,
Silvia

Appendix 3: List of Spanish companies operating in China contacted.

- AYB HISLABOR DECOR SL
- CALZADOS FUTURMODA SL
- COJINETES DE FRICCIÓN SA
- DOGI INTERNATIONAL FABRICS SA
- FICOSA SA
- TEXTIL SANTANDERINA SA
- TUTTO PICCOLO SA
- ABASIC SLU
- CORTEFIEL SA
- FABRICAS AGRUPADAS DE MUÑECAS DE ONIL SAU
- FUNDACION PRIVADA PARA LA INNOVACION TEXTIL
- IMAGINARIUM SA
- IMC TOYS SA
- INDUSTRIA DE DISEÑO TEXTIL SA
- MTNG GLOBAL EXPERIENCE SL
- ORBEA SOCIEDAD COOPERATIVA INDUSTRIAL
- PAPEL ARALAR SA
- PUNTO FA SL

El fabricante español de sillas de bebé Babyauto tiene una factoría en China pero hace dos años decidió abrir una planta en Zarauz, localidad donde nació, un retorno que no ha resultado fácil

Empresas que vuelven de China

ZEDOR ALDAMA
Shanghai.

El estallido financiero de Estados Unidos en 2007, hace justo ahora ocho años ha acelerado un proceso que va a dar como resultado un nuevo orden mundial: por un lado, los países emergentes, con China a la cabeza, fortifican su presencia global; por otro lado, países desarrollados que no han invertido en innovación y se han visto lastrados por la burbuja inmobiliaria, con España como uno de los ejemplos paradigmáticos, se ven obligados a devaluar a sus trabajadores para resultar competitivos frente a las potencias en vías de desarrollo.

Esta coyuntura está provocando un fenómeno curioso: las empresas chinas se lanzan a la internacionalización, ya sea con sus propias marcas o comprando empresas extranjeras y multinacionales foráneas que habían deslocalizado su producción al gigante asiático deciden buscar alternativas más económicas en otros países del entorno o, incluso, devuelven la fabricación a casa. Plásticos Zarauz, empresa que fabrica Babyauto, la principal marca española de sillas de bebé para automóvil, es una de las que optó por esa última solución hace dos años. Creó la marca *presslum* Babyauto More y decidió fabricar sus productos en España y no en la ciudad china de Ningbo, donde sí se mantiene la producción de la marca básica.

Entonces, el director general de la compañía, Gabriel Elizaguirre, aseguró que deseaba volver a fabricar en su localidad natal, donde su abuelo creó la empresa que ahora sí se mantiene como almacén. Pero desechó la idea cuando vio que no había nadie dispuesto a fabricar las piezas de plástico que requería. "Me dijeron que era demasiado complicado", explicó. Elizaguirre también cargó contra el Gobierno vasco, que le



Gabriel Elizaguirre, director general de Babyauto, en una feria del sector de la infancia en China.

A. A. DANA

dió una ayuda para establecer una oficina en China, pero que no ofrece ventajas para quienes desean regresar. "Solo podíamos acceder a un préstamo del ICO", contó.

Así que, finalmente, el proceso se distribuye por gran parte de la geografía española. "Se hace el diseño gráfico en San Sebastián y el diseño de estructura e ingeniería en Barcelona; la fabricación y el ensamblaje se llevan a cabo en Murcia con piezas de plástico producidas allí y textil de Tudela", explica el responsable de Comunicación, Ibon Maza. Pero, a pesar de que han conseguido encajar todas las piezas, el regreso a España no está siendo ningún camino de rosas. Porque Elizaguirre reconoce que alcanzar las altas calidades que busca está siendo más difícil de lo esperado.

Y el problema no es únicamente de fabricación. "He descubierto que, desafortunadamente, la etiqueta de *Made in Spain* no su-

pone una ventaja comparativa en España. Cuando el consumidor en una gran superficie tiene que elegir entre dos productos similares, es el precio lo que determina su decisión final", se lamenta Elizaguirre. No obstante, en China sí que supone un importante valor añadido. En el Gran Dragón son cada vez más conscientes de que el *made in Spain* sale caro a la larga, y "están dispuestos a pagar por el extra que supone lo fabricado en Europa".

La paradoja

Liberto Folch, vicepresidente de la Asociación Española de Productos para la Infancia, considera que esta es una de las muchas consecuencias de la crisis. "La desindustrialización es lo peor para el futuro de España. Sobre todo la muerte de la industria auxiliar. Porque quien quiera regresar lo va a tener difícil. No sólo se

pierden instalaciones, también conocimiento".

Elizaguirre y Folch, que participaron hace unos días en la mayor feria de la industria de la infancia en China, sostienen que la devaluación del trabajador español es "una ventaja competitiva de la que no tendríamos que sentirnos orgullosos". Además, consideran un error que 78.000 españoles tengan que emigrar cada año para labrarse un futuro. En China sucede justo lo contrario: los jóvenes que han estudiado fuera regresan alentados por las buenas perspectivas de futuro, analiza Elizaguirre. Así, sucede que la secretaria de Babyauto en Ningbo cobra 9.800 yuanes al mes (casi 1.500 euros), un importe por el que ahora en España trabajarían muchos jóvenes bien formados. "Los trabajadores chinos están ganando los derechos laborales que nosotros perdemos", concluye.